

NEW PILOT PROGRAM

Using Engineering and Economic Analysis Tools to Develop Highway Investment Strategies

The Federal Highway Administration (FHWA) has launched a new pilot program to introduce States to an investment analysis tool known as the HERS/ST, for Highway Economic Requirements System–State Version. The goal of the pilot program is to determine if the HERS/ST software program would be useful for State highway planning and to ascertain what engineering economic analysis tools and practices might prove useful to States in considering alternative highway system improvement strategies.

The HERS/ST model is a direct extension of the national-level HERS model, a software program developed by FHWA and used to examine the relationship between investment levels and the condition and performance of the Nation's highway system. FHWA uses the national-level model to estimate future investment requirements of the Nation's highway system for the U.S. Congress.

Recognizing the model's utility in national-level highway investment planning and its potential as an effective decision analysis tool for States, the newly created FHWA Office of Asset Management, in collaboration with the FHWA Office of Legislation and Strategic Planning (which is responsible for the national-level HERS model), decided to initiate the pilot program.

QUESTIONS THAT HERS/ST WILL ANSWER

Given user-specified constraints (such as funding levels, minimum benefit-to-cost ratio criteria, or performance goals), HERS/ST will answer the following types of questions:

- How will a reduction (or increase) of x percent in highway investment levels affect the condition and performance of the State's highway system over the next 20 years?
- What level of future investment is required in the State's highway system to ensure that average effective travel speeds on the system are maintained?
- What level of investment is required to make all economically beneficial improvements on the system (e.g., those projects where the benefit-to-cost ratio is great than one, or those whose benefits to society exceed the improvement costs)?

FHWA believes that the HERS/ST model will provide a common, objective platform for State DOTs to communicate with State legislatures and other officials regarding the impacts of alternative highway investment levels. The HERS/ST may also be able to assist State DOTs in meeting the provisions of the Governmental Accounting Standards Board Statement No. 34, which requires States to document that they are making periodic investments to properly maintain their highway infrastructure assets at an effective condition level.

SPECIFICS ON HOW THE HERS/ST MODEL WORKS

The HERS/ST model employs engineering and economic principles to develop its forecasts of highway investment requirements. It uses information that States already provide annually to FHWA for the Highway Performance Monitoring System (HPMS) database. Using the data from each section of highway included in the



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HPMS (or subsequently added by the user), HERS/ST:

- Forecasts future deficiencies (pavement, capacity, and/or alignment);
- Identifies a list of improvement options to correct these deficiencies;
- Estimates the costs and benefits of implementing each improvement option and calculates benefit/cost ratios for each; and
- Ranks the project improvements by their benefit/cost ratios and lists the most cost-beneficial options until the user-defined criteria are met (e.g., maximum funding level, performance goal).

HERS/ST PILOT PROGRAM

As the first step in initiating the pilot program, FHWA will complete development of the HERS/ST prototype software.

This involves integrating selected features of State-level versions of HERS developed by the private sector for Oregon and Indiana with the latest version of the national-level HERS model. This step is scheduled to be complete in spring 2000. FHWA will then set up meetings with those States interested in participating in the pilot. Participants in the program will receive the HERS/ST software, along with training and technical support, at no cost. Program participants will be asked to experiment with HERS/ST for several months and to provide comments on the model's usefulness for various State-level applications, as well as suggestions for future revisions.

If the States indicate the model is of practical use, FHWA is committed to making further revisions and providing HERS/ST to all interested States. If participating States find HERS/ST not ideally suited to their purposes, all parties still gain from the exchange, as the comments collected from the pilot program will be used to direct future research aimed at providing investment analysis tools to the States.

To obtain information on the HERS/ST software or to inquire about participating in the pilot program, please contact:

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